

Habitat Limiting Factors and Reconnaissance Assessment Report

Green/Duwamish and Central Puget Sound Watersheds
(Water Resource Inventory Area 9 and Vashon Island)

Volume I

December 2000



Habitat Limiting Factors and Reconnaissance Assessment Report Green/Duwamish and Central Puget Sound Watersheds (WRIA 9 and Vashon Island)

Acknowledgments

The Habitat Limiting Factors and Reconnaissance Assessment Report would not have been possible without the support and cooperation of many individuals, groups and agencies. The members of the Green/Duwamish Technical Advisory/Factors of Decline Subcommittee are gratefully thanked for their major contributions. This committee is an interjurisdictional and agency team comprised of individuals with technical backgrounds in ecology, hydrology, fisheries biology, fluvial geomorphology, water quality, and engineering. The Committee's expertise and familiarity with the habitats within the subwatersheds of Water Resource Inventory Area (WRIA) 9 and Vashon and Maury Islands and their interest and willingness to share their knowledge contributed substantially to this report.

Technical Editors:

John Kerwin, Washington Conservation Commission (Washington CC)
Tom S. Nelson, King County Department of Natural Resources (King County DNR)

Report Coordinator:

Jennifer Rice, King County DNR

Principal Authors of Individual Chapters and Reports:

Executive Summary Dennis Clark, King County DNR
Introduction Jennifer Rice, King County DNR
Salmon Habitat Needs John Kerwin and Dr. Carol Smith, Washington CC
Salmon Stock Status John Kerwin, Washington CC
Genetics John Kerwin, Washington CC

Factors of Decline/Conditions

Land Use Perry Falcone and Doug Osterman, King County DNR
Judith Noble, City of Seattle
Water Quality Lorin Reinelt, King County DNR
Hydrology Sue Madsen, R2 Resource Consulting (R2)
Hydrology Addendum
(Naturalized Flow Regime) Clint Loper, King County DNR
Sediment/Streambed Sue Madsen, R2
Hydromodification Sue Madsen, R2
Riparian Sue Madsen, R2
Fish Passage Sue Madsen, R2
Non-Native Species Sue Madsen, R2

Tributaries John Kerwin, Washington CC

The assistance of Kurt Beardlsee and Jamie Glasgow, both of Washington Trout, was invaluable in the development of the Vashon and Maury Islands components of the tributary reports.

Estuary and Nearshore Conditions..... Laura Blackmore, King County DNR

Brian Murray, Doug Henderson and Daniel Smith of King County DNR, are thanked for their efforts in gathering data, and Ken Rauscher for his assistance in data analysis.

Dr. Jon Houghton and Jim Starkes, both of Pentec Environmental, provided information about the Duwamish River estuary.

Gregory Williams, Battelle Marine Sciences Laboratory, Jim Starkes, Pentec Environmental are the principal authors of the draft State of the Nearshore Report from which much of the Estuary and Nearshore Conditions chapter is drawn. Jim Brennan, King County DNR, provided review and comment. The Nearshore Technical Committee provided review of initial drafts of this chapter.

Assessment..... Tom Nelson, King County DNR
John Kerwin, Washington CC

Substantial assistance and review of this chapter were provided by members of the WRIA 9 Planning Work Group.

Conclusions Tom Nelson, King County DNR
John Kerwin, Washington CC

Substantial assistance and review of this chapter were provided by members of the WRIA 9 Planning Work Group.

Fish Distribution Maps

The Fish Distribution Maps were initially developed through a workshop held in May 1999. Individuals from numerous governmental agencies, Indian tribes and non-profit organizations, and private citizens knowledgeable about salmonid utilization in the watershed participated. Information from databases, including StreamNet, SSHIAP and the WDFW Spawning Ground Survey Database were also utilized. The initial work product was further reviewed and refined during a workshop in 2000.

Perry Falcone, King County DNR, coordinated map production.

Fish Barrier Map

The Fish Barrier Maps shown in this report were initially developed by using information from field notes and databases including StreamNet, SSHIAP and the Washington Department of Transportation fish barrier database. The initial work product was further reviewed and refined by the WRIA 9 Technical Committee at a workshop in 2000.

Reviewers and Participants:

This report would not have been possible without the support, contributions, and cooperation of many reviewers and participants, including:

Washington Environmental Council, Doreen Johnson; *Federation of Fly Fishermen*, Howard Johnson; *EcoCline Consulting & Muckleshoot Indian Tribe*, Rod Malcom; *Martha Bean Consulting*, Martha Bean; *Northwest Indian Fisheries Commission*, Jennifer Cutler and Devin Smith; *Pentec Environmental*, Jon Houghton; *PIE Engineering*, Glenn Grette; *People for Puget Sound*, Jacques White; *Puget Sound Water Quality Action Team (PSWQAT)*, Kathy Minsch and Kathy Taylor; *R2 Resource Consulting*, Sue Madsen; *Shannon and Wilson, Inc.*, Richard Brocksmith; *Trout Unlimited*, Hal Boynton and Joe Stone; *Tacoma Public Utilities*, Paul Hickey; *US Army Corps of Engineers*, Patrick Cagney, Fred Goetz, and Captain Glen Reed; *US Forest Service*, Karen Bergeron; *Washington CC*, John Kerwin and Ed Manary; *Washington Department of Ecology (WDOE)*, Lori LeVander and Kevin Fitzpatrick; *Washington Department of Fish & Wildlife*, Mike Chamblin and Kirk Lakey; *Washington Department of Natural Resources*, Walt Pulliam; *City of Auburn*, Dennis Dowdy, Tim Carlaw and Paul Krauss; *City of Kent*, Bill Wolinski; *City of Normandy Park*, Steve Bennett; *City of Renton*, Ron Straka and Allen Quynn; *City of Seattle*, Joan Kersnar, Judith Noble and Jennie Goldberg; *City of Tukwila*, Ryan Larsen, Ryan Partee, Gary Schulz and Phil Fraser; *Port of Seattle*, George Blomberg; *King County Department of Development and Environmental Services (DDES)*, Don Finney; *King County DNR*, Laura Blackmore, Jim Brennan, Jeff Burkey, Dennis Clark, Betsy Cooper, Hilary Culverwell, Perry Falcone, Linda Hanson, Philip Hartigan, David Hartley, Judy Herring, Jacoba Johnson, Josh Kahan, Andy Levesque, Clint Loper, Eric K. Nelson, Tom Nelson, Sarah Ogier, Doug Osterman, Colleen Rasmussen, Jackie Reid, Lorin Reinelt, Jennifer Rice, Ruth Schaefer, David St. John, Katy Vanderpool, David Masters, Randy Shuman and Bob Fuerstenberg.

Other Contributors:

WRIA 9 Planning Work Group
WRIA 9 Public Outreach Work Group

Program Managers:

Ed Manary, Washington CC
Doug Osterman, King County DNR

General Editing and Word Processing:

Sally A. Thomas
Marcia McNulty

Report Design, GIS and Graphics:

Laurel Preston, King County DNR
Collene Gaolach, King County DNR
Sandy Kraus, King County DNR
Ron McFarlane, NWIFC

WRIA 9 Steering Committee:

King County Metropolitan Council, Dwight Pelz, Chair, Councilmember; *City of Seattle*, Margaret Pageler, Councilmember, Jan Drago, Councilmember; *City of Auburn*, *Green/Duwamish Watershed Forum*, Charles Booth, Mayor; *City of Kent*, *Green/Duwamish Watershed Forum* Tim Clark, Councilmember; *City of Renton*, *Green/Duwamish Watershed Forum*, Jay Covington, Chief Administrative Officer; *City of Burien*, *Central Puget Sound Watershed Forum*, Stephen Lamphear, Councilmember; ; *City of Tukwila*, *Green/Duwamish Watershed Forum*, Steve Mullet, Mayor; *Green/Duwamish Watershed Alliance*, John Beal and James Rasmussen; *US Army Corps of Engineers*, Noel Gilbrough; *Washington Department of Fish and Wildlife (WDFW)*, Kirk Lakey, and Phil Schneider; *City of Normandy Park*, *Central Puget Sound Watershed Forum*, John Wiltse, Councilmember; *Port of Seattle*, Thomas A. Newlon and Denise Stiffarm; *Washington Department of Natural Resources (WDNR)*, Art Tasker; *Washington Department of Ecology (DOE)*, Janet Thompson; *Washington Environmental Council*, Doreen Johnson; *King County Agricultural Commission*, Burr Mosby; *King Conservation District*, Max Prinsen; *Covington Water District*, Judith Nelson and Lys Hornsby; *Tacoma Public Utilities*, John Kirner and Paul Hickey; *Trout Unlimited*, Al Barrie; *Plum Creek Timber Company*, Jeff Light and Don Nettleton; *Master Builders Association*, Peter Orser and Dick Lowell; *South County Chambers Coalition*, John Raeder; *The Boeing Company*, David Sizemore; *Washington Trout*, Marilyn Tuohy.

Recommended Citation:

Kerwin, John and Nelson, Tom S. (Eds.). December 2000. "Habitat Limiting Factors and Reconnaissance Assessment Report, Green/Duwamish and Central Puget Sound Watersheds (WRIA 9 and Vashon Island)." Washington Conservation Commission and the King County Department of Natural Resources.

Financial Contributions:

Lead Entity Salmon Restoration Grant (WRIA 9). Washington Department of Fish and Wildlife
Federal Salmon Recovery Funding Grant (FY 99). Washington State Governor's Salmon Recovery Office
Puget Sound Action Team Interagency Agreement (IAC 2000 08)
Port of Seattle
King Conservation District